

APPLICATION NO. 10/668605

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CLMPTO

1. A photodiode array comprising a semiconductor substrate of a first conduction type formed with an array of a plurality of pn junction type photodiodes on an incident surface side for light to be detected, the surface opposite from the incident surface in the semiconductor substrate being made of a (100) plane; the semiconductor substrate having a through hole, formed in an area held between the photodiodes, penetrating through the semiconductor substrate from the incident surface side to the opposite surface side;

the photodiode array comprising a conductive layer extending from the incident surface to the opposite surface by way of a wall surface of the through hole;

the through hole comprising:

a vertical hole part formed substantially perpendicular to the incident surface on the incident surface side, and

a pyramidal hole part formed like a quadrangular pyramid on the opposite surface side;

the vertical hole part and pyramidal hole part being connected to each other within the semiconductor substrate,

the pyramidal hole part having a wall surface formed as a (111) plane.

2. A photodiode array according to claim 1, further comprising a high impurity concentration layer of the first

conduction type surrounding the through hole within the  
semiconductor substrate.

CLAIM 3 (CANCELLED)